AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1-13. (Cancelled)

13. (New) A method for grinding a rotationally-symmetrical workpiece having first and second cylindrical parts and a center part situated therebetween that has an outer diameter surface having a diameter greater than diameters of said first and second cylindrical parts and first and second center part side surfaces respectively disposed between said outer diameter surface and said first and second cylindrical parts:

providing a grinding spindle having first and second grinding wheels mounted uniaxially thereon at spindle end portion and rotatable about a spindle axis, said first grinding wheel having first and second sides with a first grinding wheel outer circumferential surface therebetween which is substantially cylindrical, said first grinding wheel outer circumferential surface having a profile conforming to and extending a length of said first center part side surface to be ground;

chucking said workpiece at ends of the first and second cylindrical parts to place said workpiece in a chucked state;

rotating said workpiece about a workpiece rotation axis in said chucked state;

supporting said grinding spindle on first and second pivots, said first pivot having a first pivot axis oriented perpendicular to said workpiece rotation axis, and said second pivot having a second pivot axis oriented in a direction perpendicular to said spindle axis and perpendicular to said first pivot axis;

pivoting said grinding spindle on said second pivot between a second pivot first position placing said first and second grinding wheels at a first side of said second pivot, and a second pivot second position placing said first and second grinding wheels at a second side of said second pivot opposite said first side of said second pivot;

pivoting said grinding spindle on said first pivot to align said grinding spindle axis parallel to a radial angular extension of a mean surface contour of said first center part side surface to orient said first grinding wheel outer circumferential surface for grinding said first center part side;

moving said first grinding wheel outer circumferential surface and said first center part side surface relative to one another along said workpiece axis direction with said first grinding wheel outer circumferential surface aligned along a workpiece rotation axis direction with said first center part side surface when said grinding spindle is pivoted to said second pivot first position to profile grind said first center part side surface;

pivoting said grinding spindle on said first pivot to align said grinding spindle axis parallel to said workpiece rotation axis to position said second grinding wheel to grind said first cylindrical part when said grinding spindle is in said second pivot first position;

grinding said first cylindrical part with said second grinding wheel by moving said first cylindrical part and said second grinding wheel relative to one another along said workpiece rotation axis direction;

pivoting said grinding spindle on said first pivot, with said grinding spindle in said second pivot second position, to align said grinding spindle axis parallel to said workpiece rotation axis to position said second grinding wheel to grind said second cylindrical part; and

grinding said second cylindrical part with said second grinding wheel by moving said second cylindrical part and said second grinding wheel relative to one another along said workpiece rotation axis direction.

14. (New) The method in accordance with claim 13, wherein a width of said second grinding wheel is less than that of said first grinding wheel.

15. (New) The method in accordance with claim 14, wherein the grinding of the first and cylindrical parts comprises rough-grinding.

16. (New) The method in accordance with claim 14, wherein the grinding of the first and cylindrical parts comprises plunge-cut grinding.

17. (New) The method in accordance with claim 14, wherein the said workpiece is chucked between centers and driven to rotate by at least one of said centers.

18. (New) The method in accordance with claim 14, wherein said workpiece is held horizontally and said first pivot axis is vertical and said second pivot axis is horizontal.

19. (New) The method in accordance with claim 14, wherein said first center part side surface forms a truncated cone.

20. (New) The method in accordance with claim 14, wherein said first center part side surface is one of concave and convex.

21. (New) The method in accordance with claim 13, wherein the grinding of the first and cylindrical parts comprises rough-grinding.

22. (New) The method in accordance with claim 13, wherein the grinding of the first and cylindrical parts comprises plunge-cut grinding.

23. (New) The method in accordance with claim 13, wherein the said workpiece is chucked between centers and driven to rotate by at least one of said centers.

24. (New) The method in accordance with claim 13, wherein said workpiece is held horizontally and said first pivot axis is vertical and said second pivot axis is horizontal.

25. (New) The method in accordance with claim 13, wherein said first center part side surface forms a truncated cone.

26. (New) The method in accordance with claim 13, wherein said first center part side surface is one of concave and convex.

27. (New) The method in accordance with claim 13, wherein said first center part side surface is profile ground before said first cylindrical part is ground

and said first cylindrical part is ground before said second cylindrical part is ground.

28. (New) An apparatus for grinding a workpiece having first and second workpiece ends, comprising:

first and second chucking devices for chucking said workpiece at said first and second workpiece ends and rotationally driving said workpiece about a workpiece rotational axis;

a grinding spindle slide movable in a direction running transverse to said workpiece rotational axis, said workpiece and said grinding spindle slide being longitudinally mutually displaceable in a direction parallel to said workpiece rotational axis;

a grinding spindle having an end portion configure to mount at least one grinding element;

a first pivot having a first pivot axis disposed perpendicular to said workpiece rotational axis;

a second pivot having a second pivot axis disposed perpendicular to a spindle axis of said grinding spindle and perpendicular to said first pivot axis; and

said grinding spindle being supported on said grinding spindle slide via said first and second pivots.

29. (New) The apparatus of claim 28 wherein:

said first pivot has a first pivot first portion disposed on said grinding spindle slide, and a first pivot second portion pivotally mounted to said first pivot first portion; and

said second pivot has a second pivot first portion fixedly connected to said first pivot second portion, and a second pivot second portion pivotally mounted to said second pivot first portion and supporting said grinding spindle.

30. (New) The apparatus of claim 29 wherein said second pivot first portion is fixedly connected to said first pivot second portion via a grinding headstock.

31. (New) The apparatus of claim 30 further comprising a grinding table on which said first and second chucking members are disposed, said grinding table and said grinding spindle slide being movable relative to one another in a direction of said workpiece rotation axis.

32. (New) The apparatus of claim 31 wherein said workpiece has first and second cylindrical parts and a center part situated therebetween that has an outer diameter surface having a diameter greater than diameters of said first and second cylindrical parts and first and second center part side surfaces respectively disposed

between said outer diameter surface and said first and second cylindrical parts, said apparatus further comprising:

said at least one grinding element being first and second grinding wheels uniaxially mounted on said end portion of said grinding spindle;

said first grinding wheel having first and second sides with a first grinding wheel outer circumferential surface therebetween, said first grinding wheel outer circumferential surface having a meridian profile conforming to and extending a length of a meridian of said first center part side surface which is to be ground; and

said second grinding wheel having a lesser width than said first grinding wheel and said first and said second grinding wheels being mounted overhung on said end portion of said grinding spindle.

33. (New) The apparatus in accordance with claim 32, wherein:

said first and second chucking members for chucking said workpiece comprise first and second centers that are respectively attached to a workpiece headstock and tailstock and that centeringly engage with first and second end-face bores of said workpiece; and

said center at the workpiece headstock is provided with a coupling that is mechanically linked to said first end-face bore via tension members that act radially from inside to outside to engage and rotate the workpiece.

34. (New) The apparatus in accordance with claim 33, wherein said coupling comprises a split cone coupling having outwardly spreading tensions members formed as chucking jaws arranged in a region of a tip of a longitudinal bore of a shaft situated in said workpiece headstock and said chucking jaws are actuated by a connecting rod that passes through said longitudinal bore and, in a region of said chucking jaws, is provided with an actuating cone.

35. (New) The apparatus in accordance with claim 34, wherein at least one of said first and second centers is supported by one or more rests.

36. (New) The apparatus of claim 28 further comprising a grinding table on which said first and second chucking members are disposed, said grinding table and said grinding spindle slide being movable relative to one another in a direction of said workpiece rotation axis.